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ART. I. *Case of Amputation of the Lower Jaw affected with Osteo-Sarcoma.* By J. RANDOLPH, M. D. [With a plate.]

MAY 20th, 1829, I performed the operation of excision of a portion of the lower jaw, affected with osteo-sarcoma, on Mr. Parke Shee, of Chester, Pennsylvania, aged fifty-three years. Mr. Shee applied to Dr. PHYSICK, for the first time, in the beginning of this month, for advice on account of a large tumour which occupied his lower jaw bone, and occasioned so much deformity as to excite the curiosity, and arrest the attention of almost every person who saw him. He was unable to assign any very satisfactory cause for the existence of this tumour; he recollects to have had several teeth roughly extracted, and thinks, perhaps justly, that this was the origin to which it may be attributed.

The tumour had existed for six or eight years; he first perceived a small lump of the size of a hazle-nut on the external face of the bone, just below the right cuspidatus tooth: it was not attended with much pain, and increased for a long time but slowly. He had been frequently advised to apply for proper relief, but in consequence of being actively engaged in business, he neglected to do so until he became alarmed by the rapid increase in its size, which had taken place in the last few months. The disease at this time appeared to extend from the first bicuspid tooth on the left side to within a short distance of the angle of the bone on the right. No trace of the teeth or alveolar processes could be found on the right side beyond the second incisor tooth; the bone here was expanded, and presented a large, smooth, convex surface, covered by the lining membrane of the mouth. It completely filled up the cavity of the mouth on the right

side, and occupied the space under the tongue of the same side, nearly as low down as its attachment to the os hyoides. The tongue was consequently thrown out of its natural situation, and rested upon the surface of the tumour, this occasioned considerable difficulty in deglutition. Externally, the tumour was pretty regularly convex, and seemed to be principally composed of osseous structure, an evident fluctuation, however, could be felt at the extremity of the chin, and lines could also be perceived denoting several distinct cells or cavities to exist in it, which were afterwards found to contain a thick, inodorous, serous fluid. The size and weight of the tumour was so great as not only to occasion considerable difficulty in mastication and deglutition, but also caused great inconvenience by its continual tendency to draw the lower jaw downwards and keep the mouth open, from which there was a constant flow of saliva. The patient had, however, entire controul of the motions of his jaw, and could move it freely in all directions.

Mr. Shee having been made fully aware of the particular circumstances of his case, and of the necessity which existed in our opinion for the removal of the diseased mass, promptly expressed his willingness to submit to any operation which we deemed necessary. I accordingly proceeded to its performance, on Wednesday, the 20th of May, in the presence of Drs. PHYSICK, HORNER, TUCKER, HAYS, GILLINGHAM, &c. The patient being seated on a high chair, I made an oblique incision through the lip, commencing at the right angle of the mouth, and carrying it down over the tumour, just in advance of the masseter muscle, I terminated it about half an inch below the base of the jaw. The right coronary artery, which was divided by this incision, was then secured by a ligature. I was now able to dissect off the skin and integuments from the whole external surface of the tumour, as far back as the first large grinder on the left side, at which place having exposed the bone, I divided it with great ease by means of a common key-hole saw, properly sharpened. I now dissected off the integuments from the right side of the bone, as far back as the last molar tooth, at which place I also sawed through the bone, but I experienced some difficulty in doing this, in consequence of the tumour extending so far on this side as to interfere with the motions of the saw. Previously to sawing the bone on this side, the fascial artery, which had been necessarily divided, was taken up and tied. I now completed the removal of the tumour, by dividing the mucous membrane of the mouth, and separating the bone from the mylo-hyoid and its other muscular connexions. This was soon done, as the adhesions between the tumour and the surrounding parts were so slight, that

when the diseased part of the bone was entirely detached from the sound part, I was able to draw out the morbid mass and finish the dissection with but little difficulty.

Throughout the whole dissection I took particular care to cut close upon the surface of the tumour, in order to avoid wounding important parts lying adjacent to it. After removing the tumour, not being satisfied with the appearance of the extremity of the bone on the right side, it was deemed proper to remove another portion of it; I accordingly cut off half an inch of it with great ease, by means of a metacarpal saw, there being no lump now to retard the motions of the saw. The time occupied by the operation was twenty minutes; the patient did not lose more than six or eight ounces of blood. After carefully securing such of the small vessels as bled, I brought the integuments together on the right side, and retained the edges in contact by means of the interrupted suture. A compress was then placed under the chin, and the relaxed integuments were supported by a roller passed round the chin and head. The patient was a good deal prostrated by the operation; in the evening his pulse rose to 85, he however fell into a fine sleep, perspiration came on, and he passed a good night. In the morning I found him with a pulse of 70, since which time he has not had any fever. For the first four or five days he could neither swallow nor speak, excepting with great difficulty; he can now articulate nearly as distinctly as he could do before the operation, and swallows with much ease and satisfaction his nourishment, consisting of whey, milk, eggs, oysters, soup, &c. On the seventh day from the time of the operation, the patient was able to get up and walk about his room, and in four weeks he returned home quite well.

Several saws have been recommended by different surgeons for the purpose of dividing the lower jaw; at the suggestion of Dr. Physick, I used a common key-hole saw; it answered perfectly. I had a saw made similar to the one used by Mr. Syme, of Edinburgh, having a straight blade six inches and a half long, and half an inch broad; but after a trial with each, I prefer the former. As regards the propriety of tying the carotid artery previous to commencing the extirpation, I would observe, that in this case I consider such a procedure would have been highly improper and altogether unnecessary.

The Plate accompanying this paper represents accurately the appearance of Mr. Shee before and after the operation.

With respect to the nature of this tumour, I would observe, that its formation appeared to me to be perfectly independent of any constitutional diathesis. Mr. Shee is the father of thirteen healthy children, he himself in other respects seemed to enjoy excellent health,

and did not exhibit the slightest marks of a scrofulous habit. The disease appeared to me to be strictly local, inasmuch as the external integuments and internal parts, with which it was in contact, were quite sound, and not at all implicated with it; his countenance was natural and good. The disease evidently originated in the cancellated structure of the bone, and while at the same time the tumour was enlarging considerably externally, in consequence of new bony deposition, absorption was also taking place within, and this to such an extent that in several places the bone which covered the tumour became as thin as the shell of an egg, and in other parts it was entirely removed, and its place supplied by a dense fibrous structure. I cannot agree with the French and German surgeons in supposing that all osteo-sarcomatous tumours necessarily possess a malignant character, and are identical with cancer and fungus haematoëdes, diseases so connected with a morbid state of the constitution, and so liable to contaminate the adjacent parts, that their removal seldom enables us to calculate upon a cure. Had this tumour, which originated in my opinion from common inflammation, been excited in a constitution impaired and predisposed to morbid actions, I can readily imagine that it should have possessed a highly malignant character, with which the constitution should have become deeply involved, and that its removal would not insure the patient from a return of the disease.

But, inasmuch as the inflammation attacked a healthy constitution, and the patient was not subjected to any adequate treatment for its removal, it was suffered to progress until it occasioned the alteration in the structure of the bone which I have described, and which I do not believe possessed a malignant character, but was so entirely local as to warrant me in hoping that my operation would be permanently successful.

Pl. I. fig. 1. represents the appearance of the patient before the operation; fig. 2. after the operation.

Philadelphia, July 27, 1829.

ART. II. *Fœtal Bones coloured with Madder.* By R. D. MUSSEY,
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THE nature of the communication established between the blood-vessels of the mother and those of the fœtus, is, perhaps, still a problem. From the almost uniform failure in attempts to inject the one